East San Joaquin
WATER QUALITY COALITION
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November 15, 2017

Pamela Creedon, Executive Officer
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670-6114

Dear Ms. Creedon,

The East San Joaquin Water Quality Coalition (ESJWQC or Coalition) is submitting a request for the completion of the management plans for specific constituents from selected site subwatersheds and from the site's Management Plan Monitoring (MPM) schedule. Justification for the request is provided through the four requirements outlined in the WDR (R5-2012-0116-R3) Attachment B, Appendix MRP-1, Section III, Pages 8 and 9 per each site subwatershed in the attached letter. Monitoring results for each site/constituent included in this letter are provided in Appendix I.

Sites listed below meet the four requirements for management plan completion due to improved water quality. If approved, the Coalition will remove site specific constituent management plans and MPM for:

- Berenda Slough along Ave 18 ½ (chlorpyrifos)
- Deadman Creek @ Gurr Rd (toxicity to *C. dubia* and *P. promelas*)
- Deadman Creek @ Hwy 59 (chlorpyrifos)
- Duck Slough @ Gurr Rd (toxicity to *P. promelas*, sediment toxicity to *H. azteca)*
- Hatch Drain @ Tuolumne Rd (sediment toxicity to *H. azteca)*
- Lateral 2 ½ near Keyes Rd (chlorpyrifos)
- Levee Drain @ Carpenter Rd (toxicity to *C. dubia*, sediment toxicity to *H. azteca*)
- Livingston Drain @ Robin Ave (toxicity to *S. capricornutum*)
- Miles Creek @ Reilly Rd (pH)
- Mootz Drain downstream of Langworth Pond (diuron)
- Westport Drain @ Vivian Rd (toxicity to *S. capricornutum*)

Submitted respectfully,

Parry Klassen
Executive Director
East San Joaquin Water Quality Coalition

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INTRODUCTION

Management Plan Monitoring (MPM) is conducted as part of the East San Joaquin Water Quality Coalition's (ESJWQC or Coalition) management plan strategy to identify contaminant sources and evaluate the effectiveness of management practices in improving water quality. Management plans are required as a result of a single exceedance of the Water Quality Trigger Limit (WQTL) of a Total Maximum Daily Load (TMDL) constituent (Specific conductance (SC), boron, chlorpyrifos, and diazinon), or more than one exceedance of a WQTL within a three-year period for any other constituent. When a constituent becomes the focus of the ESJWQC Management Plan, the Coalition initiates focused outreach and conducts MPM during months of high pesticide use.

With the adoption of the WDR, the frequency of monthly monitoring and the scheduling of MPM during months of past exceedances were modified as described in WDR Attachment A page 14: "The previous requirement to monitor monthly resulted in monitoring during months in which no problems would be expected and infrequent monitoring during peak periods when potential problems could occur. The third-party will be required to evaluate pesticide use patterns and peak times when pesticides from irrigated agriculture operations may cause problems in surface water. Based on that evaluation, the third-party will propose a frequency and time period to conduct monitoring that will adequately characterize surface waters receiving irrigated agricultural waste discharges." Therefore, the MPM schedules proposed/approved in the Coalition's MPU reports are based on months of peak pesticide use. Furthermore, page 9 of the WDR Appendix MRP-1 indicates: "demonstration of management plan completion must include consideration of periods of peak use and/or periods when a parameter is likely to be present." Appendix I of this letter includes tabulated results for all monitoring that has taken place within three years for the constituents and sites the Coalition is proposing management plan completion. In some cases monitoring occurred during months of past exceedances because of high pesticide use during those months, in other cases, applications of pesticides shifted to different months and monitoring was adjusted according to the patterns in pesticide use. The ESJWQC Surface Water Quality Management Plan (SQMP; approved November 24, 2015) includes a flow chart which describes the process for Coalition monitoring, source identification, outreach, and evaluation of management practices.

Through analysis of monitoring results and management practice data, the Coalition determined there is sufficient evidence to request completion of 14 management plans from 11 site subwatersheds (Table 1).

Table 1. ESJWQC sites and constituents proposed for management plan completion.

Site Subwatershed	Years of Focused Outreach	pH	Chlorpyrifos	Diuron	*C. dubia*	*P. promelas*	*S. capricornutum*	*H. azteca*	Total
Berenda Slough along Ave 18 ½	2011-2013		X						1
Deadman Creek @ Gurr Rd	2012-2014				X	X			2
Deadman Creek @ Hwy 59	2012-2014		X						1
Duck Slough @ Gurr Rd	2010-2012; 2016-2018					X		X	2
Hatch Drain @ Tuolumne Rd	2013-2015							X	1
Lateral 2 ½ near Keyes Rd	2011-2013, 2017-2019		X						1
Levee Drain @ Carpenter Rd	2015-2017				X			X	2
Livingston Drain @ Robin Ave	2011-2013, 2017-2019						X		1
Miles Creek @ Reilly Rd	2013-2015, 2017-2019	X							1
Mootz Drain downstream of Langworth Pond	2015-2017			X					1
Westport Drain @ Vivian Rd	2014-2016						X		1
	Total	**1**	**3**	**1**	**2**	**2**	**2**	**3**	**14**

To support the Coalition's request, tabulated monitoring results for the required three years of monitoring with no exceedances are provided in an Excel file for each site/constituent (Appendix I). Charts for all Pesticide Use Report (PUR) data for agriculturally applied constituents are included in Appendix II. The section key below outlines the requirements for management plan completion as stated in the WDR and the corresponding section locations per each site subwatershed (Table 2).

Table 2. Management plan completion section key.

Requirements for Management Plan Completion:	Section Name/Location
1. Demonstration through evaluation of monitoring data that the water quality impairment is no longer occurring (i.e., 3 or more years with no exceedances during the times of the year when previous exceedances occurred) or demonstrated compliance with the WDR's surface and groundwater receiving water limitations.	• Site Subwatershed Overview and Monitoring History, • Constituent Monitoring Results and Sourcing
2. Documentation of education and outreach to applicable members in the watershed where water quality impairment occurred.	• Summary of Outreach
3. Documentation of member implementation of management practices that address the water quality exceedance.	• Management Practices Implemented
4. Demonstration that the management practices implemented by members are effective in addressing the water quality impairment.	• Justification to Complete Management Plans for Constituents • Future Monitoring

SUPPORTING DOCUMENTATION FOR MANAGEMENT PLAN COMPLETION

BERENDA SLOUGH ALONG AVE 18 ½

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituent Requested for Management Plan Completion:

- Chlorpyrifos

Site Subwatershed Overview and Monitoring History

Berenda Slough along Ave 18 ½ is a Represented site located in Zone 6. Monitoring began during the irrigation season of 2006 and continued through the 2017 WY with the exception of 2009 and 2010. The site was monitored for the full suite of constituents from 2011 through 2012 for Assessment Monitoring. Management Plan Monitoring occurred during 2007, 2008, and 2011 during months of past exceedances and from the 2014 WY through the 2017 WY during months of high chlorpyrifos use.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years of monitoring with no exceedances are included in Appendix I (2006 through September 2017). A PUR chart indicating past applications of chlorpyrifos in the site subwatershed is included in Appendix II.

Four exceedances of the WQTL for chlorpyrifos occurred in samples collected from Berenda Slough along Ave 18 ½ in July (0.043 µg/L) and September (0.14 µg/L) 2006, July 2007 (0.028 µg/L), and April 2011 (0.021 µg/L). Toxicity to *C. dubia* was associated with only the September 2006 exceedance (40% survival compared to the control).

Since the last exceedance of the WQTL for chlorpyrifos in April 2011, the Coalition has monitored at the site 60 times for chlorpyrifos. Of those 60 events, the site was dry 42 times and samples were collected for chlorpyrifos analysis 18 times with no detections. The end of three years of monitoring with no exceedances was April 2014. In addition to the required three years of monitoring for management plan completion the Coalition continued to monitor for chlorpyrifos during the 2015 WY, 2016 WY, and 2017 WY; no exceedances of the WQTL occurred.

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition conducted focused outreach in the site subwatershed from 2011 through 2013. In 2011, the Coalition contacted 19 targeted growers farming approximately 4,103 acres in the site subwatershed. Management practices were documented for 38% of the acreage identified as having direct drainage or the ability to provide drift to Berenda Slough. Coalition representatives discussed local water quality concerns and the importance of preventing the offsite movement of all agricultural constituents. The Coalition followed up with the growers in 2012 to determine if recommended and/or new practices were implemented.

The Coalition continues to provide general outreach to all members. Through grower notifications and meetings, the Coalition informs members of water quality results, management practices to eliminate water quality impairments, availability of funding for management practice implementation, results of studies of management practice efficacy, and management practice implementation and tracking activities.

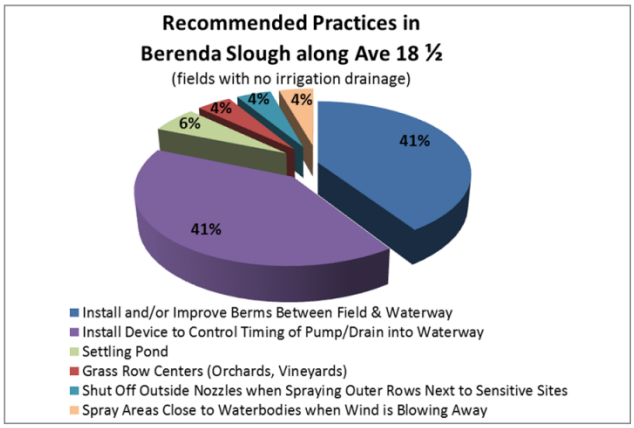
3. Documentation of member implementation of management practices to address water quality exceedance

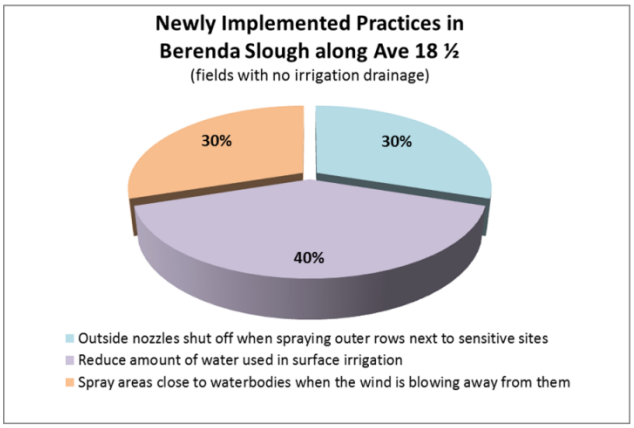
The complete analysis of management practices implemented in the Berenda Slough along Ave 18 ½ site subwatershed was reported in the ESJWQC April 1, 2013 MPUR. Results from that analysis are summarized in the section below.

Management Practices Implemented

During initial contact meetings, Coalition representatives recommended six practices to three growers; follow-up surveys indicated three of the six practices were implemented (Figure 1). In addition, growers implemented new practices not recommended such as shutting off outside nozzles when spraying outer rows next to sensitive sites, spraying areas close to waterbodies when wind is blowing away, and reducing the amount of water used in surface irrigation (Figure 1).

Figure 1. Percent of acreage represented by recommended and implemented management practices in the Berenda Slough along Ave 18 ½ site subwatershed.





4. Demonstration that the management practices implemented by members are effective in addressing water quality impairment

Justification for Removal

The Coalition's focused outreach and management practice tracking strategy has been effective at improving water quality as indicated by no exceedances of the WQTL for chlorpyrifos in three or more years (Table 3). Furthermore, PUR data indicate a decline in chlorpyrifos use in the site subwatershed with 5,891 in 2013 compared to only 2,100 lbs AI applied in 2016 (Appendix II). In addition, the site has been dry during almost all monitoring events since 2012 which indicates a decline in irrigation water runoff (due to low precipitation and growers implementing management practices to reduce discharge). During the 2016 and 2017 WYs, the Coalition was able to collect samples during months of past exceedances and months of high use due to the presence of water at the sample site (which could have been due to the increase in precipitation during 2016-2017) and no exceedances occurred.

Table 3. Berenda Slough along Ave 18 ½ chlorpyrifos monitoring history from 2008 through the 2017 WY.
Black cells indicate exceedances, grey cells indicate a sample was collected, and orange cells indicate the site was dry.

Chlorpyrifos (µg/L)	Month											
Monitoring Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2006							0.043		0.14			
2007							0.028					
2008												
2009												
2010												
2011				0.021								
2012												
2013												
2014												
2015												
2016												
2017											2018 WY	

Based on focused outreach surveys and follow-up results, targeted growers in the Berenda Slough along Ave 18 ½ site subwatershed implemented management practices that resulted in improved water quality as reflected by the absence of exceedances of the chlorpyrifos WQTL. The Coalition has monitored for six years with no exceedances of the WQTL for chlorpyrifos from 2012 through 2017 (three years more than is required in the WDR for management plan completion). Therefore, the Coalition requests that the management plan and MPM for chlorpyrifos be approved for completion at Berenda Slough along Ave 18 ½ site subwatershed.

Future Monitoring

During the 2018 WY, monitoring at Berenda Slough along Ave 18 ½ is scheduled as outlined in the Coalition's MPU (approved November 10, 2017) for chlorpyrifos. Monitoring will occur as scheduled until the approval of management plan completion is received from the Regional Board.

DEADMAN CREEK @ GURR RD

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituent Requested for Management Plan Completion:

- Water column toxicity to *C. dubia*
- Water column toxicity to *P. promelas*

Site Subwatershed Overview and Monitoring History

Deadman Creek @ Gurr Rd is a Represented site located in Zone 5. Monitoring at this location began during the irrigation season of 2004 and has continued through the 2017 WY with the exception of 2011. The site was monitored for the full suite of constituents monthly from 2008 through 2010 for Assessment Monitoring. Management Plan Monitoring occurred from 2012 through the 2017 WY during months of past toxicity.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years of monitoring with no toxicity are included in Appendix I. Appendix I lists the monitoring events where toxicity to *C. dubia* and *P. promelas* were analyzed from 2004 through August 2017.

Toxicity to *C. dubia*

There have been five instances of toxicity to *C. dubia* in samples collected from Deadman Creek @ Gurr Rd in February (0% survival) and March (10%) 2009, February (0%) and November 2010 (0%), and November 2013 (0%). A TIE was initiated and concluded that ammonia was the cause of all toxicity that occurred in samples collected on February 7, 2009, March 23, 2010, November 16, 2010, and November 12, 2013 (concentrations ranging from 31 mg/L to 155.4 mg/L.

A TIE was initiated on the March 17, 2009 toxic samples and indicated pyrethroids as the source of toxicity. No other exceedances coincided with the toxicity.

Since the last toxicity in November 2013, the Coalition has monitored for toxicity to *C. dubia* 11 times with no toxicity; the site was dry for four of the 11 monitoring events. The end of three years monitoring with no toxicity was November 2016. In addition to the required three years of monitoring for management plan completion, the Coalition monitored for toxicity at the site in February for seven years and March for six years with no toxicity.

Toxicity to *P. promelas*

There have been eight instances of toxicity to *P. promelas* in samples collected from Deadman Creek @ Gurr Rd: June 2006 (87.5 % survival), January (87.5%), February (0%), and December (75%) 2009, March (0%) and November (0%) 2010, and November (0%) and December (0%) 2013. A TIE was initiated for samples with survival 50% and below.

Samples collected during the June 2006 and January 2009 monitoring event were toxic to *P. promelas* with 87.5% survival compared to the control. Resampling occurred one week after the initial samples were collected in June 2006 and toxicity was not persistent. Samples that resulted in toxicity to *C. dubia* in June 2006 and January 2009 did not coincide with any exceedances of the WQTL for ammonia.

Samples collected on December 15, 2009 were toxic to *P. promelas* with 75% survival compared to the control. Samples were collected from a non-contiguous waterbody and an exceedance of the WQTL for ammonia coincided with the toxicity (15 mg/L). Since survival was greater than 50% compared to the control a TIE was not conducted to confirm if ammonia caused the toxicity.

Samples collected on February 7, 2009 (0% survival), March 23, 2010 (0%), November 16, 2010 (0%), November 12, 2013 (0%), and December 10, 2013 (0%) were toxic to *P. promelas*. A TIE was initiated on all the samples and indicated ammonia as the source of toxicity to *P. promelas*. The concentration of ammonia detected in all five of the toxic samples was enough to account for all toxicity and ranged from 15 mg/L to 155.4 mg/L.

Since the last toxicity in December 2013, the Coalition has monitored for toxicity to *P. promelas* 26 times with no toxicity; the site was dry for 11 of the 26 monitoring events. The end of three years of monitoring with no exceedances was December 2016. In addition to the required three years of monitoring for management plan completion, the Coalition monitored for toxicity at the site from January through March, June, and August of the 2017 WY and no toxicity occurred.

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition conducted focused outreach in the site subwatershed from 2012 through 2014. In 2012, the Coalition contacted two targeted growers farming 240 acres in the site subwatershed. Management practices were documented for 9% of the acreage identified as having direct drainage or the ability to provide drift to Deadman Creek. Coalition representatives discussed local water quality concerns and the importance of preventing the offsite movement of all agricultural constituents. The Coalition followed up with the growers in 2013 to determine if any new practices were implemented.

3. Documentation of member implementation of management practices to address water quality exceedance

The complete analysis of management practices implemented in the Deadman Creek @ Gurr Rd site subwatershed was reported in the ESJWQC 2014 Annual Report. Results from that analysis are summarized in the section below.

Management Practices Implemented

During focused outreach meetings, coalition representatives did not recommend any additional management practices to be implemented, as growers in the site subwatershed were already implementing several practices considered sufficient to prevent drift and irrigation runoff. Both targeted growers indicated on their follow-up surveys that no new management practices were implemented.

Both growers use surface irrigation techniques and laser level their fields. One grower, whose property accounts for 96 acres, utilizes a drainage basin (sediment ponds) to capture and retain runoff. The growers both irrigate based on the moisture levels in the soil and crop needs. One grower indicated stormwater runoff does not occur. The other grower farming the remaining acres reported that stormwater runoff from fields can occur after the soil is saturated in late winter. Both growers implement erosion and sediment management practices, including maintaining vegetation along ditches and filter strips around field perimeters at least 10 feet wide. Neither grower applies pesticides during the dormant season.

One of the two growers reported that he implements several pest management practices including calibrating equipment prior to every application, adjusting spray nozzles to match crop canopy profile, and shutting off outside nozzles when spraying outer rows next to sensitive sites. The other grower specified that herbicides are not applied during the winter months.

4. Demonstration that the management practices implemented by members are effective in addressing water quality impairment

Justification for Removal

Results from focused outreach indicated sufficient management practices were already being implemented by the two targeted growers. Although no additional practices were implemented, the contact by coalition representatives made the growers more conscious about pesticides application practices which was sufficient to eliminate the discharges (Table 4, Table 5). Outreach efforts in this site subwatershed proved effective even if it only prompted the growers to re-evaluate how they implement their practices and perhaps make small changes to practices making them more effective. The Coalition requests that the management plan for toxicity to *C. dubia* and *P. promelas* be approved for completion

at the Deadman Creek @ Gurr Rd site subwatershed due to three years of monitoring results with no toxicity.

Table 4. Deadman Creek @ Gurr Rd *C. dubia* toxicity monitoring history from 2004 through the 2017 WY.
Black cells indicate exceedances, grey cells indicate a sample was collected, and orange cells indicate the site was dry.

C. dubia (% Survival)	Month											
Monitoring Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2004												
2005												
2006												
2007												
2008												
2009		0	10									
2010			0								0	
2011												
2012												
2013											0	
2014												
2015												
2016												
2017											2018 WY	

Table 5. Deadman Creek @ Gurr Rd *P. promelas* toxicity monitoring history from 2004 through the 2017 WY.
Black cells indicate exceedances, grey cells indicate a sample was collected, and orange cells indicate the site was dry.

P. promelas (% Survival)	Month											
Monitoring Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2004												
2005												
2006						88						
2007												
2008												
2009	88	0										75
2010			0								0	
2011												
2012												
2013											0	0
2014												
2015												
2016												
2017											2018 WY	

Future Monitoring

During the 2018 WY, monitoring at Deadman Creek @ Gurr Rd is scheduled as outlined in the Coalition's MPU (approved November 10, 2017) for toxicity to *C. dubia* and *P. promelas*. Monitoring will occur as scheduled until the approval of management plan completion is received from the Regional Board.

DEADMAN CREEK @ HWY 59

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituents Requested for Management Plan Completion:

- Chlorpyrifos

Site Subwatershed Overview and Monitoring History

Deadman Creek @ Hwy 59 is a Represented site located in Zone 5. Monitoring was initiated at the site in the irrigation season of 2006 and has continued through the 2017 WY. The site was monitored for the full suite of constituents from 2011 through 2012 for Assessment Monitoring. Management Plan Monitoring for chlorpyrifos occurred from 2012 through the 2017 WY during months of high chlorpyrifos use and months of past exceedances.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years of monitoring with no exceedances are included in Appendix I (2006 through September 2017). A PUR chart indicating past applications of chlorpyrifos in the site subwatershed is included in Appendix II.

There have been six exceedances of the WQTL for chlorpyrifos at Deadman Creek @ Hwy 59 in September 2006 (0.059 µg/L), August 2007 (0.038 µg/L), August and September 2008 (0.14 and 0.069 µg/L; respectively), and in April and September 2011 (0.016 and 0.049 µg/L; respectively). Toxicity did not coincide with any of the exceedances.

Since the last exceedance of the WQTL for chlorpyrifos in September 2011, the Coalition has monitored for chlorpyrifos 34 times with no detections; the site was dry for 14 of the 34 monitoring events. The end of three years monitoring with no exceedances was September 2014. In addition to the required three years of monitoring for management plan completion, sampling for chlorpyrifos continued through the 2017 WY and no exceedances occurred.

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition conducted focused outreach from 2012 through 2014 in Deadman Creek @ Hwy 59 site subwatershed. In 2012, the Coalition contacted eight targeted growers farming 3,414 irrigated acres in the site subwatershed. Management practices were documented for 30% of the acreage identified as having direct drainage or within proximity to contribute to spray drift to Deadman Creek. Coalition representatives discussed local water quality concerns and the importance of preventing the offsite

movement of all agricultural constituents. The Coalition followed up with the growers in 2013 to determine if recommended and/or new practices were implemented.

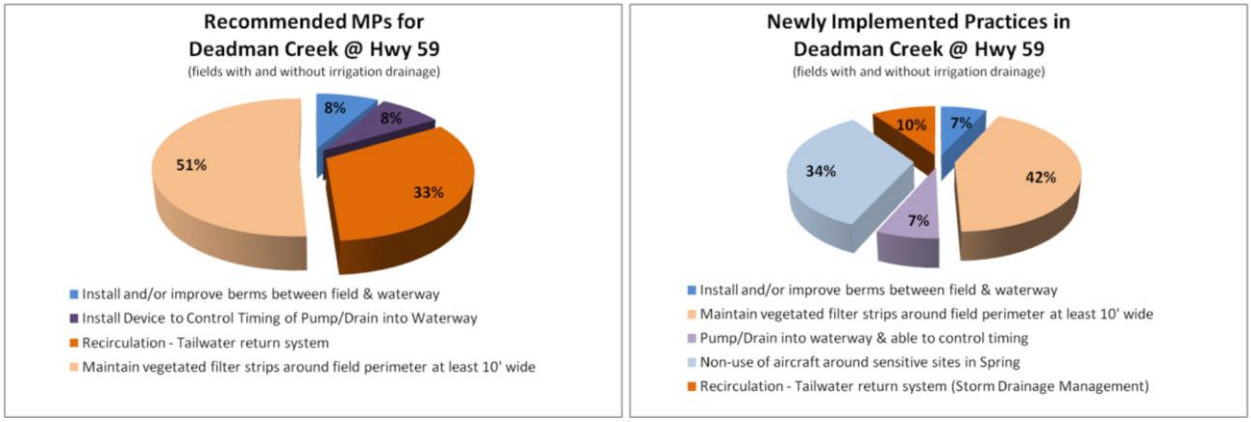
3. Documentation of member implementation of management practices to address water quality exceedance

The complete analysis of management practices implemented in the Deadman Creek @ Hwy 59 site subwatershed was reported in the ESJWQC 2014 Annual Report. Results from that analysis are summarized in the section below.

Management Practices Implemented

During initial contact meetings, Coalition representatives recommended additional management practices to five growers to improve irrigation tailwater and stormwater management and to reduce erosion and offsite movement of sediment (Figure 2). Four of the five growers implemented all recommended management practices and the fifth grower implemented a new practice not recommended by the Coalition (non-use of aircraft around sensitive sites; Figure 2).

Figure 2. Percent of acreage represented by recommended and implemented management practices in the Deadman Creek @ Hwy 59 site subwatershed.



4. Demonstration that the management practices implemented by members are effective in addressing water quality impairment

Justification for Removal

The Coalition's focused outreach and management practice tracking strategy has been effective at improving water quality as indicated by zero exceedances of the WQTL for chlorpyrifos in the Deadman Creek @ Hwy 59 site subwatershed in three or more years (Table 6). Furthermore, PUR data indicates a decline in chlorpyrifos use within the site subwatershed (Appendix II). In addition, the site has been dry during almost all monitoring events since 2012. The site could be dry due to low precipitation and improved water management practices by growers to reduce discharge. The Coalition has monitored

for six years with no exceedances of the WQTL for chlorpyrifos from 2012 through 2017 (three years more than is required in the WDR for management plan completion). Therefore, the Coalition requests that the management plan and MPM be approved for completion for chlorpyrifos at Deadman Creek @ Hwy 59 site subwatershed.

Table 6. Deadman Creek @ Hwy 59 chlorpyrifos monitoring history from 2006 through the 2017 WY.
Black cells indicate exceedances, grey cells indicate a sample was collected, and orange cells indicate the site was dry.

Chlorpyrifos (µg/L)	Month											
Monitoring Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2006									0.059			
2007								0.038				
2008								0.14	0.069			
2009												
2010												
2011				0.016					0.049			
2012												
2013												
2014												
2015												
2016												
2017										2018 WY		

Future Monitoring

During the 2018 WY, monitoring at Deadman Creek @ Hwy 59 is scheduled as outlined in the Coalition's MPU (approved November 10, 2017) for chlorpyrifos. Monitoring will occur as scheduled until the approval of management plan completion is received from the Regional Board.

DUCK SLOUGH @ GURR RD

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituent Requested for Management Plan Completion:

- Water column toxicity to *P. promelas*
- Sediment toxicity to *H. azteca*

Site Subwatershed Overview and Monitoring History

Duck Slough @ Gurr Rd is one of the rotating Core and Represented sites located in Zone 5. Every third year the site represents the Core site in Zone 5. Monitoring began during the irrigation season of 2004 and continued through the 2017 WY. The site was monitored for the full suite of constituents in 2011 for Assessment Monitoring and during the 2014 and 2015 WYs as the Core site. Management Plan Monitoring was initiated in 2010 and continued through the 2017 WY. In 2012, MPM did not take place at the site due to temporary MPM suspension from April through December.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years of monitoring with no exceedances are included in Appendix I. Appendix I lists the monitoring events where water column toxicity to *P. promelas* and sediment toxicity to *H. azteca* were analyzed from 2004 through September 2017.

Toxicity to *P. promelas*

Samples collected in October 2011 and March 2014 were toxic to *P. promelas* with 90% and 85% survival compared to the control; respectively. The TIEs were not conducted on either sample since survival was greater than 50% compared to the control.

Since the last toxicity in March 2014, the Coalition has monitored for *P. promelas* toxicity 18 times with no toxicity; the site was dry for one of the 18 monitoring events. The end of three years of monitoring with no toxicity was March 2017.

Sediment toxicity to *H. azteca*

Samples to analyze for sediment toxicity to *H. azteca* are collected twice a year. One sample is collected between August 15th and October 15th, and one sample is collected between March 1st and April 30th. There have been six instances of sediment toxicity to *H. azteca* in samples collected from Duck Slough @ Gurr Rd: in August 2004 (35.5% survival compared to the control), July and September 2005 (64.5% and 3.9% survival), August 2008 (63% survival), September 2010 (70% survival), and September 2013 (0%

survival). Monitoring results did not indicate an associated water column exceedance with the toxic sediment events.

Additional sediment chemistry analyses were conducted on the September 2010 and 2013 samples. Concentrations of bifenthrin, chlorpyrifos, lambda-cyhalothrin, and permethrin were detected in the September 2010 samples and bifenthrin, chlorpyrifos, cyfluthrin, lambda-cyhalothrin, esfenvalerate, fenpropathrin, and permethrin were detected in September 2013 sediment samples.

Since the last toxicity in September 2013, the Coalition has monitored for sediment toxicity to *H. azteca* five times, from the 2014 WY through the 2017 WY. The end of three years monitoring with no toxicity was September 2016. In addition to the three years of monitoring for management plan completion, the Coalition continued to monitor for *H. azteca* in September 2017 and no toxicity occurred.

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition conducted focused outreach in the Duck Slough @ Gurr Rd site subwatershed with targeted members from 2010 through 2012. In 2010, the Coalition contacted six targeted growers representing 2,656 irrigated acres. Management practices were documented for 46% of the acreage identified as having direct drainage or the potential to impact water quality through spray drift. Coalition representatives discussed local water quality concerns, the importance of preventing the offsite movement of all agricultural constituents, and recommended implementing one additional management practice. The Coalition followed up with the growers in 2011 to determine if recommended and/or new practices were implemented.

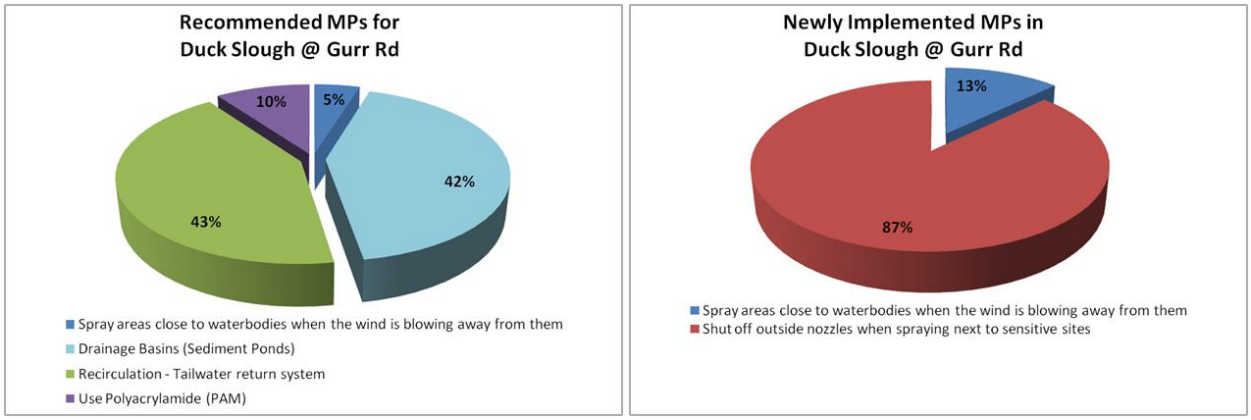
3. Documentation of member implementation of management practices to address water quality exceedance

The complete analysis of management practices implemented in the Duck Slough @ Gurr Rd site subwatershed was reported in the ESJWQC April 1, 2012 MPUR. Results from that analysis are summarized in the section below.

Management Practices Implemented

During initial contact meetings, Coalition representatives recommended management practices to all six targeted growers. Follow-up surveys indicated one grower implemented the recommended management practice of spraying areas close to the waterbody when the wind is blowing away. The five other growers indicated no change in implemented management practices (Figure 3). One grower implemented practices that were not recommended for their operations (shutting off outside nozzles when spraying outer rows next to sensitive sites). Overall, 37% of the acreage targeted during focused outreach implemented recommended management practices (2012 MPUR, page 91).

Figure 3. Percent of acreage represented by recommended and implemented management practices in the Duck Slough @ Gurr Rd site subwatershed.



In addition, the Coalition contacted eight growers in the site subwatershed for 2016 Focused Outreach representing 5,418 irrigated acres. Management practices were documented for 32% of the acreage identified as having direct drainage or the potential to impact water quality through spray drift. Coalition representatives reviewed survey responses and determined that all practices currently implemented by these eight growers were sufficient for protecting water quality.

4. Demonstration that the management practices implemented by members are effective in addressing water quality impairment

Justification for Removal

The Coalition's focused outreach and management practice tracking strategy has been effective at improving water quality as indicated by no toxicity to *P. promelas* and no sediment toxicity to *H. azteca* in the Duck Slough @ Gurr Rd site subwatershed in three or more years (Table 7 and Table 8). Growers contacted during focused outreach from 2010 through 2012 implemented practices designed to prevent spray drift to sensitive areas. In addition, the Coalition is continuing focused outreach efforts in the site subwatershed in 2016 through 2018. The Coalition requests that the management plan and MPM be approved for completion for *P. promelas* toxicity and sediment toxicity to *H. azteca* at Duck Slough @ Gurr Rd site subwatershed.

Table 7. Duck Slough @ Gurr Rd *H. azteca* sediment toxicity monitoring history from 2004 through the 2017 WY.
Black cells indicate exceedances, grey cells indicate a sample was collected, and orange cells indicate the site was dry.

H. azteca (% Survival)	Month											
Monitoring Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2004								35.5				
2005							65		3.9			
2006												
2007												
2008								63				
2009												
2010									70			
2011												
2012												
2013									0			
2014												
2015												
2016												
2017											2018 WY	

Table 8. Duck Slough @ Gurr Rd *P. promelas* toxicity monitoring history from 2004 through the 2017 WY.
Black cells indicate exceedances, grey cells indicate a sample was collected, and orange cells indicate the site was dry.

P. promelas (% Survival)	Month											
Monitoring Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2004												
2005												
2006												
2007												
2008												
2009												
2010												
2011										90		
2012												
2013												
2014			85									
2015												
2016												
2017											2018 WY	

Future Monitoring

During the 2018 WY, MPM at Duck Slough @ Gurr Rd for *P. promelas* toxicity and sediment toxicity to *H. azteca* is scheduled as outlined in the Coalition's MPU (approved November 10, 2017) and will occur as scheduled until the approval of management plan completion is received.

HATCH DRAIN @ TUOLUMNE RD

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituent Requested for Management Plan Completion:

- Sediment toxicity to *H. azteca*

Site Subwatershed Overview and Monitoring History

Hatch Drain @ Tuolumne Rd is a Represented site located in Zone 2. Monitoring began in 2007, continued through October 2008, and resumed from 2013 through the 2017 WY. From 2013 through the 2017 WY, MPM for sediment toxicity to *H. azteca* occurred.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years of monitoring with no exceedances are included in Appendix I (2007 through the 2017 WY).

Since monitoring began in 2007, sediment toxicity to *H. azteca* occurred six times in samples collected at Hatch Drain @ Tuolumne Rd: in August 2007 (0% survival compared to the control), March 2008 (0% survival), August 2008 (0% survival), March 2013 (72% survival), March 2014 (56% survival), and September 2014 (52% survival).

No additional sediment chemistry analyses were conducted on toxic samples collected on August 16, 2007, March 4, 2008, and August 19, 2008. Monitoring results did not indicate an associated water column exceedance with the toxic sediment events.

Sediment samples collected on March 12, 2013 were toxic to *H. azteca* (72% survival). The chemistry analysis conducted on the sample indicated detections of bifenthrin, chlorpyrifos, and lambda-cyhalothrin. Sediment samples collected on March 4, 2014 and September 9, 2014 were toxic to *H. azteca*. Additional sediment chemistry analyses were conducted on both samples and concentrations of bifenthrin, chlorpyrifos, lambda-cyhalothrin, cypermethrin, permethrin, and esfenvalerate were detected.

Since the last sediment toxicity in September 2014, the Coalition monitored for sediment toxicity six times with no instances of toxicity. The end of three years of monitoring with no toxicity was September 2017.

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition conducted focused outreach in the Hatch Drain @ Tuolumne Rd site subwatershed from 2013 through 2015. In 2013, the Coalition contacted a single grower representing 36 irrigated acres. Management practices were documented for 13% of the acreage identified as having direct drainage or the potential to impact water quality through spray drift. Coalition representatives discussed local water quality concerns, the importance of preventing the offsite movement of all agricultural constituents, and recommended implementing one additional management practice. The Coalition followed up with the grower in 2014 to determine if recommended and/or new practices were implemented.

3. Documentation of member implementation of management practices to address water quality exceedance

The complete analysis of management practices implemented in the Hatch Drain @ Tuolumne Rd site subwatershed was reported in the ESJWQC 2015 Annual Report. Results from that analysis are summarized in the section below.

Management Practices Implemented

During the initial contact meeting, Coalition representatives recommended one additional management practice to spray areas close to waterbodies when the wind is blowing away from them. The follow-up survey indicated the recommended management practice was implemented.

4. Demonstration that the management practices implemented by members are effective in addressing water quality impairment

Justification for Removal

The Coalition's focused outreach and management practice tracking strategy has been effective in the Hatch Drain @ Tuolumne Rd at improving water quality as indicated by no toxicity to *H. azteca* in three or more years (Table 9). Based on focused outreach surveys and follow-up results, targeted growers implemented management practices and water quality improved. The Coalition requests that the management plan and MPM be approved for completion for sediment toxicity to *H. azteca* at Hatch Drain @ Tuolumne Rd site subwatershed.

Table 9. Hatch Drain @ Tuolumne Rd *H. azteca* sediment toxicity monitoring history from 2007 through the 2017 WY.

Black cells indicate exceedances, grey cells indicate a sample was collected, and orange cells indicate the site was dry.

H. azteca (% Survival)	Month											
Monitoring Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2007								0				
2008			0					0				
2009												
2010												
2011												
2012												
2013			72									
2014			56						52			
2015												
2016												
2017										2018 WY		

Future Monitoring

During the 2018 WY, monitoring is scheduled at Hatch Drain @ Tuolumne Rd as outlined in the Coalition's MPU (approved November 10, 2017) for sediment toxicity to *H. azteca*. Monitoring will occur as scheduled until the approval of management plan completion is received.

LATERAL 2 ½ NEAR KEYES RD

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituents Requested for Management Plan Completion:

- Chlorpyrifos

Site Subwatershed Overview and Monitoring History

Lateral 2 ½ near Keyes Rd is a Represented site located in Zone 2. Monitoring at Lateral 2 ½ near Keyes Rd began in October 2008 and continued through the 2017 WY, with the exception of 2012 when no monitoring occurred. The site was monitored monthly for the full suite of constituents from October 2008 through December 2010 for Assessment Monitoring. Management Plan Monitoring was initiated in 2011 and continued through the 2017 WY for chlorpyrifos.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years of monitoring with no exceedances are included in Appendix I (2008 through the 2017 WY). A PUR chart indicating past applications of chlorpyrifos in the site subwatershed is included in Appendix II.

Four exceedances of the WQTL for chlorpyrifos occurred in samples collected from Lateral 2 ½ near Keyes Rd in July 2009 (0.049 µg/L), April 2010 (0.076 µg/L), July 2010 (0.061 µg/L), and July 2014 (0.16 µg/L). Toxicity did not coincide with any of the exceedances.

Since the last exceedance of the WQTL for chlorpyrifos in July 2014, the Coalition monitored for chlorpyrifos 15 times with no exceedances; the site was dry for one of the 15 monitoring events. The end of three years monitoring with no exceedances was July 2017.

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition conducted focused outreach in the Lateral 2 ½ near Keyes Rd site subwatershed from 2011 through 2013. In 2011, the Coalition contacted 25 targeted growers farming 1,826 irrigated acres. Management practices were documented for 47% of the acreage identified as having direct drainage or the ability to provide drift. Coalition representatives discussed local water quality concerns and the importance of preventing the offsite movement of all agricultural constituents. The Coalition followed up with the growers in 2012 to determine if recommended and/or new practices were implemented.

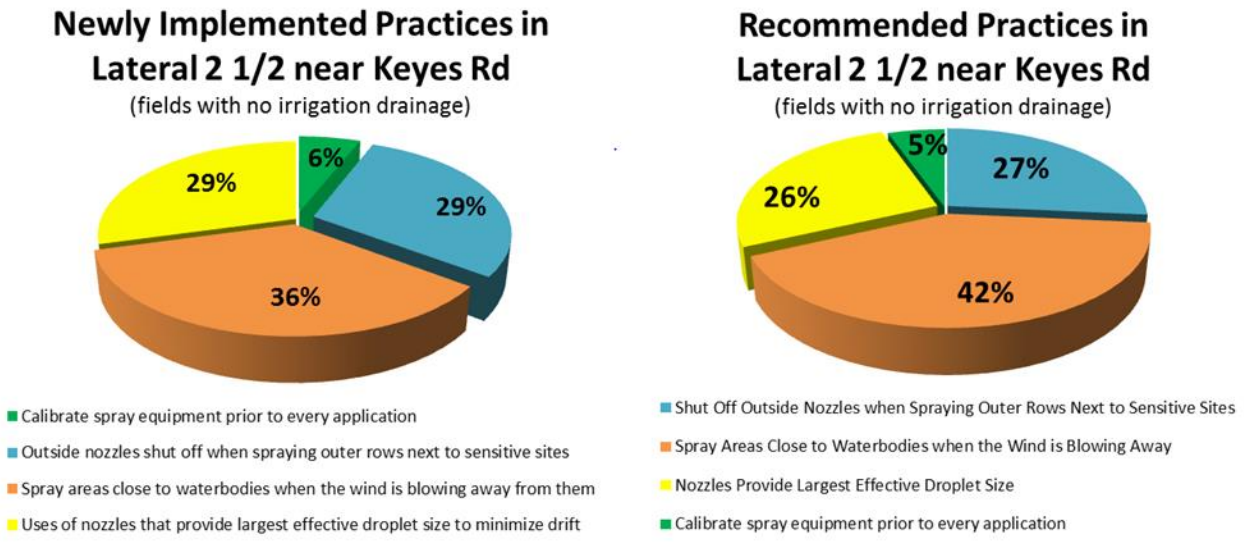
3. Documentation of member implementation of management practices to address water quality exceedance

The complete analysis of management practices implemented in the Lateral 2 ½ near Keyes Rd site subwatershed was reported in the ESJWQC 2013 MPUR. Results from that analysis are summarized in the section below.

Management Practices Implemented

The Coalition recommended management practices designed to reduce spray drift to three targeted in the site subwatershed. Growers implemented all recommended practices. Two growers implemented the recommended management practices and one grower dropped his Coalition membership prior to follow-up contact (Figure 4).

Figure 4. Percent of acreage represented by recommended and implemented management practices in the Lateral 2 ½ near Keyes Rd site subwatershed.



4. Demonstration that the management practices implemented by members are effective in addressing water quality impairment

Justification for Removal

The Coalition's focused outreach and management practice tracking strategy has been effective at improving water quality as indicated by no exceedances of the WQTL for chlorpyrifos in three or more years (Table 10). Furthermore, PUR data indicates use of pesticides containing chlorpyrifos in the site subwatershed since 2014 has declined (Appendix II, Figure II-3). Therefore, the Coalition requests that the management plan and MPM for chlorpyrifos be approved for completion at Lateral 2 ½ near Keyes Rd site subwatershed.

Table 10. Lateral 2 ½ near Keyes Rd chlorpyrifos monitoring history from 2008 through the 2017 WY.
Black cells indicate exceedances, grey cells indicate a sample was collected, and orange cells indicate the site was dry.

Chlorpyrifos (µg/L)	Month											
Monitoring Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2008												
2009							0.049					
2010				0.076			0.061					
2011												
2012												
2013												
2014							0.16					
2015												
2016												
2017											2018 WY	

Future Monitoring

During the 2018 WY, monitoring at Lateral 2 ½ near Keyes Rd is scheduled to occur as outlined in the Coalition's MPU (approved November 10, 2017) for chlorpyrifos. Monitoring will occur as scheduled until the approval of management plan completion is received from the Regional Board.

LEVEE DRAIN @ CARPENTER RD

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituent Requested for Management Plan Completion:

- Water column toxicity to *C. dubia*
- Sediment toxicity to *H. azteca*

Site Subwatershed Overview and Monitoring History

Levee Drain @ Carpenter Rd is a Represented site located in Zone 2. Monitoring at this location began in 2012 and continued through 2013 for the full suite of constituents as part of Assessment Monitoring. Normal monitoring occurred during the 2014 WY and MPM for toxicity to *C. dubia* and sediment toxicity to *H. azteca* was initiated during the 2015 WY and continued through the 2017 WY.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years monitoring with no toxicity are included in Appendix I (2012 through the 2017 WY).

Toxicity to *C. dubia*

There have been two instances of toxicity to *C. dubia* in samples collected from Levee Drain @ Carpenter Rd: in February 2013 (50% survival compared to the control) and July 2013 (35% survival). A TIE was initiated on both samples and concluded that ammonia was the cause of toxicity. The concentration of ammonia in samples analyzed on February 12th was 17 mg/L and 5.4 mg/L on July 9, 2013.

Since the last toxicity in July 2013, the Coalition has monitored for toxicity to *C. dubia* nine times during months of past toxicity and no toxicity occurred. The end of three years monitoring with no toxicity was July 2016. In addition to the required three years of monitoring for management plan completion, the Coalition monitored for toxicity to *C. dubia* in July 2017; no toxicity occurred.

Sediment toxicity to *H. azteca*

There have been two instances of sediment toxicity to *H. azteca* in samples collected from Levee Drain @ Carpenter Rd in March 2012 (26% survival compared to the control) and March 2014 (76% survival). The chemistry analysis conducted on both samples indicated detections of bifenthrin, chlorpyrifos, lambda-cyhalothrin, and permethrin.

Since the last toxicity in March 2014, the Coalition monitored for sediment toxicity five times with no instances of toxicity. The end of three years of monitoring with no toxicity was March 2017.

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition conducted focused outreach in the Levee Drain @ Carpenter Rd site subwatershed from 2015 through 2017. In 2015, the Coalition contacted four targeted growers representing 542 irrigated acres. Management practices were documented for 28% of the acreage identified as having direct drainage or the ability to provide drift. Coalition representatives discussed local water quality concerns and the importance of preventing the offsite movement of all agricultural constituents. The Coalition followed up with the growers in 2016 to determine if recommended and/or new practices were implemented.

3. Documentation of member implementation of management practices to address water quality exceedance

The complete analysis of management practices implemented in the Levee Drain @ Carpenter Rd site subwatershed for 2015 through 2017 focused outreach was reported in the 2017 Annual Report. Results from that analysis are summarized in the section below.

Management Practices Implemented

Coalition representatives recommended one of the four targeted growers (farming 48 acres) install a tailwater return system and to spray areas close to waterbodies when the wind is blowing away from them. The grower indicated on their follow-up survey that they implemented the two recommended management practices.

4. Demonstration that the management practices implemented by members are effective in addressing water quality impairment

Justification for Removal

The Coalition's focused outreach and management practice tracking strategy has been effective at improving water quality as demonstrated by no toxicity to *C. dubia* and *H. azteca* in more than three years (Table 11 and Table 12). Based on focused outreach surveys and follow-up results, targeted growers in the Levee Drain @ Carpenter Rd site subwatershed implemented management practices that resulted in improved water quality. Therefore, the Coalition requests that the management plan and MPM be approved for completion for toxicity to *C. dubia* and *H. azteca* at Levee Drain @ Carpenter Rd site subwatershed.

Table 11. Levee Drain @ Carpenter Rd *C. dubia* toxicity monitoring history from 2012 through the 2017 WY.

Black cells indicate exceedances, grey cells indicate a sample was collected, and orange cells indicate the site was dry.

C. dubia (% Survival)	Month											
Monitoring Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2012												
2013		50					35					
2014												
2015												
2016												
2017											2018 WY	

Table 12. Levee Drain @ Carpenter Rd *H. azteca* sediment toxicity monitoring history from 2012 through the 2017 WY.

Black cells indicate exceedances, grey cells indicate a sample was collected, and orange cells indicate the site was dry.

H. azteca (% Survival)	Month											
Monitoring Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2012			26									
2013												
2014			76									
2015												
2016												
2017											2018 WY	

Future Monitoring

During the 2018 WY, MPM is scheduled as outlined in the Coalition's MPU (approved November 10, 2017) for toxicity to *C. dubia* and *H. azteca*. Monitoring will continue as scheduled until the approval of management plan completion is received.

LIVINGSTON DRAIN @ ROBIN AVE

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituents Requested for Management Plan Completion:

- Water column toxicity to *S. capricornutum*

Site Subwatershed Overview and Monitoring History

Livingston Drain @ Robin Ave is a Represented site located in Zone 4. Monitoring began during the irrigation season of 2007 and continued through 2008. Management Plan Monitoring was initiated in 2011 and, except for suspended MPM from April through December 2012, continued through the 2017 WY for toxicity to *S. capricornutum* (MPM occurred at the site in February 2012).

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years of monitoring with no exceedances are included in Appendix I (2007 through the 2017 WY).

Samples collected from Livingston Drain @ Robin Ave resulted in toxicity to *S. capricornutum* during four sampling events in 2008: February (61% growth compared to the control), April (58% growth; April resample 63% growth), and May (62% growth). A TIE was not required for any of these toxicities because the percent growth was greater than 50% compared to the control.

Since the last toxicity to *S. capricornutum* in May 2008, the Coalition monitored for toxicity to *S. capricornutum* 24 times; Livingston Drain @ Robin Ave was dry during 12 of the 24 monitoring events. The end of three years of monitoring with no exceedances was May 2014. In addition, the Coalition monitored for toxicity to *S. capricornutum* from 2015 through May 2017 with no instances of toxicity to *S. capricornutum*.

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition conducted focused outreach in the Livingston Drain @ Robin Ave site subwatershed from 2011 through 2013. In 2011, the Coalition contacted 11 targeted growers representing 335 irrigated acres in the Livingston Drain @ Robin Ave site subwatershed. Management practices were documented for 23% of the acreage identified as having direct drainage. Coalition representatives met individually with growers to discuss water quality concerns and the importance of preventing the offsite movement

of all agricultural constituents. The Coalition followed up with the growers in 2012 to determine if recommended and/or new practices were implemented.

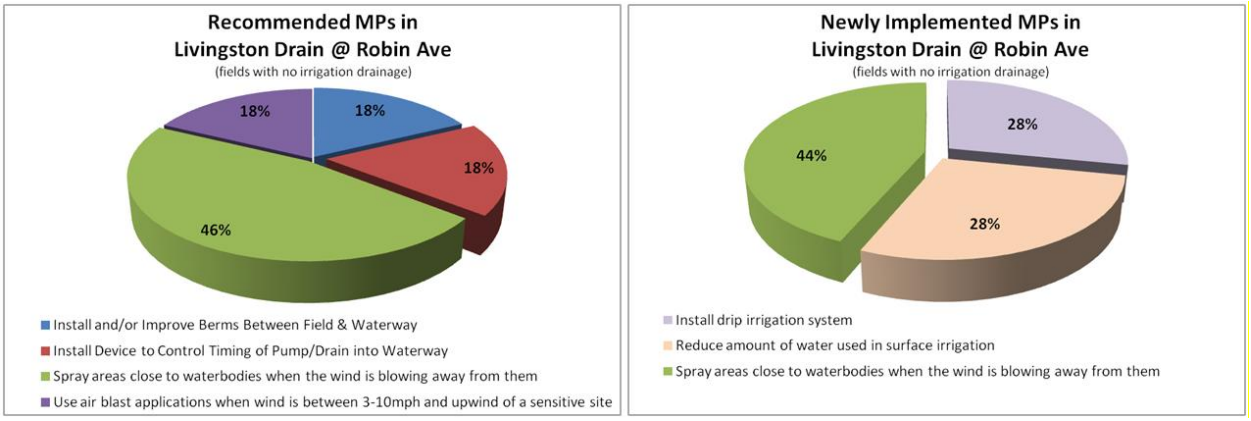
3. Documentation of member implementation of management practices to address water quality exceedance

The complete analysis of management practices implemented in the Livingston Drain @ Robin Ave site subwatershed was reported in the ESJWQC 2013 MPUR. Results from that analysis are summarized in the section below.

Management Practices Implemented

During initial contact meetings, Coalition representatives recommended management practices designed to address stormwater retention and reduce spray drift to three of the targeted growers in the Livingston Drain @ Robin Ave site subwatershed (Figure 5). Growers implemented some of the spray drift management practices recommended by Coalition representatives and also practices not specifically recommended (install drip irrigation system and reduce amount of water used in surface irrigation; Figure 5).

Figure 5. Percent of acreage represented by recommended and implemented management practices in the Livingston Drain @ Robin Ave site subwatershed.



4. Demonstration that the management practices implemented by members are effective in addressing water quality impairment

Justification for Removal

The Coalition's focused outreach and management practice tracking strategy has been effective at improving water quality as indicated by no toxicity to *S. capricornutum* in three or more years (Table 13). Based on focused outreach surveys and follow-up results, targeted growers in the Livingston Drain @ Robin Ave site subwatershed implemented management practices and water quality has improved as a

result. The Coalition requests that the management plan and MPM for water column toxicity to *S. capricornutum* be approved for completion at Livingston Drain @ Robin Ave site subwatershed.

Table 13. Livingston Drain @ Robin Ave *S. capricornutum* toxicity monitoring history from 2007 through the 2017 WY.

Black cells indicate exceedances, grey cells indicate a sample was collected, and orange cells indicate the site was dry.

S. capricornutum (% Survival)	Month											
Monitoring Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2007												
2008		61		58	62							
2009												
2010												
2011												
2012												
2013												
2014												
2015												
2016												
2017											2018 WY	

Future Monitoring

During the 2018 WY, monitoring at Livingston Drain @ Robin Ave is scheduled as outlined in the Coalition's MPU (approved November 10, 2017) for toxicity to *S. capricornutum*. Monitoring will continue as scheduled until the approval of management plan completion request is received.

MILES CREEK @ REILLY RD

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituents Requested for Management Plan Completion:

- pH

Site Subwatershed Overview and Monitoring History

Miles Creek @ Reilly Rd is a rotating Core and Represented site located in Zone 5. Every third year the site represents the Core site in Zone 5. Monitoring at Miles Creek @ Reilly Rd began during the irrigation season of 2007 and continued through February 2010. Monitoring began again in January 2013 and has continued through the 2017 WY. Miles Creek @ Reilly Rd was monitored for the full suite of constituents as the Core site in Zone 5 during the 2016 and 2017 WYs.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years monitoring with no exceedances are included in Appendix I (2007 through the 2017 WY).

Two exceedances of the upper WQTL for pH occurred at the Miles Creek @ Reilly Rd site subwatershed in February 2013 (8.63) and March 2014 (9.38). Since the last exceedance of the upper WQTL for pH in March 2014, the Coalition has monitored pH 35 times; 10 of the 35 monitoring events were dry. The end of three years of monitoring with no exceedances was March 2017. Additionally, the Coalition monitored for pH during monthly Core site monitoring in both the 2016 WY and 2017 WYs; no exceedances of the upper or lower WQTLs for pH occurred.

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition conducted focused outreach in the Miles Creek @ Reilly Rd site subwatershed from 2013 through 2015. In 2013, the Coalition contacted nine targeted growers farming 1,533 irrigated acres. Coalition representatives discussed local water quality concerns and the importance of preventing the offsite movement of all agricultural constituents.

3. Documentation of member implementation of management practices to address water quality exceedance

Management practices implemented by growers do not affect pH levels in the water column. Monitoring data do not provide a clear indication of what changed the number of exceedances of the upper WQTL for pH in the site subwatershed.

Justification for Removal

Although the Coalition cannot pinpoint exactly why exceedances of the WQTLs for pH ceased in the Miles Creek @ Reilly Rd site subwatershed, water quality has improved as indicated by the completion of four other management plans (lead, diazinon, and toxicity to *C. dubia* and *S. capricornutum*).

The proposal to complete the management plan for pH in the Miles Creek @ Reilly Rd site subwatershed is justified based on monitoring results from 2007 through the 2017 WY (Table 14). The Coalition reached three years of monitoring with no exceedances in March 2017, but monitoring continued during all sampling events through the 2017 WY with no exceedances. Therefore, the Coalition requests to complete the management plan for pH in the Miles Creek @ Reilly Rd site subwatershed.

Table 14. Miles Creek @ Reilly Rd pH monitoring history from 2007 through the 2017 WY.
Black cells indicate exceedances, grey cells indicate a sample was collected, and orange cells indicate the site was dry.

pH	Month											
Monitoring Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2007												
2008												
2009												
2010												
2011												
2012												
2013		8.63										
2014			9.38									
2015												
2016												
2017										2018 WY		

Future Monitoring

During the 2018 WY, Miles Creek @ Reilly Rd is a Represented site in Zone 5 and monitoring for pH will occur during every scheduled monitoring event as outlined in the Coalition's MPU (approved November 10, 2017).

MOOTZ DRAIN DOWNSTREAM OF LANGWORTH POND

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituents Requested for Management Plan Completion:

- Diuron

Site Subwatershed Overview and Monitoring History

Mootz Drain downstream of Langworth Pond is a Represented site located in Zone 1. Monitoring at Mootz Drain @ Langworth Rd took place from November 2008 through November 2009. In December 2009, the site was replaced by Mootz Drain downstream of Langworth Pond. Assessment Monitoring for the full suite of constituents occurred in 2009 (Mootz Drain @ Langworth Rd) in 2010, and in 2013 (Mootz Drain downstream of Langworth Pond) according to the Coalition's 2008 MRPP. Management Plan Monitoring began at Mootz Drain downstream of Langworth Pond in the 2015 WY and continued through the 2017 WY.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion due to three years of monitoring with no exceedances are included in Appendix I (2008 through February 2017). A PUR chart indicating past applications of diuron in the site subwatershed is included in Appendix II.

There have been two exceedances slightly above the 2.0 µg/L WQTL for diuron. One sample collected from Mootz Drain @ Langworth Rd in February 2009 (2.1 µg/L) and one sample collected from Mootz Drain downstream of Langworth Pond in December 2010 (2.7 µg/L).

Since the last exceedance of the WQTL for diuron in December 2010, Mootz Drain has been monitored for diuron 12 times with no exceedances. The PUR data from 2006 through December 2016 indicate diuron was last applied in the site subwatershed in December 2014. The December 2016 monitoring event for diuron concluded three years of monitoring with no exceedance at Mootz Drain downstream of Langworth Pond.

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition conducted focused outreach in the Mootz Drain downstream of Langworth Pond site subwatershed from 2015 through 2017. In 2015, the Coalition contacted six targeted growers representing 482 irrigated acres. Management practices were documented for 53% of the acreage

identified as having direct drainage or the ability to contribute to spray drift. Coalition representatives discussed local water quality concerns and the importance of preventing the offsite movement of all agricultural constituents. The Coalition followed up with the growers in 2016 to determine if recommended and/or new practices were implemented.

3. Documentation of member implementation of management practices to address water quality exceedance

The complete analysis of management practices implemented in the Levee Drain @ Carpenter Rd site subwatershed for 2015 through 2017 focused outreach was reported in the 2017 Annual Report. Results from that analysis are summarized in the section below.

Management Practices Implemented

The Coalition followed up with the two targeted growers who were recommended additional practices (farming 147.5 acres). Coalition representatives recommended four management practices, 1) install or improve berms, 2) tailwater return system, 3) sediment ponds, and 4) spray areas close to waterbodies when the wind is blowing away from them. Both growers now spray areas near waterbodies when the wind is blowing away from them and instead of installing a tailwater return system, sprinklers were installed (across 48 acres; Table 15).

Table 15. Comparison of recommended and implemented management practices in the Mootz Drain downstream of Langworth Pond site subwatershed.

Management Practice	Recommended Practices		Implemented Practices		% Recommended Acreage with Implemented Practices
	# Growers	Acres	# Growers	Acres	
No irrigation drainage from property					
Berms between field and waterway (install and/or improve)	1	48	0	0	0%
Install sprinklers	0	0	1	48	NA
Spray areas close to waterbodies when the wind is blowing away from them.	2	147.50	2	147.50	100%
Tailwater return system	1	48	0	0	0%
Use drainage basins (sediment ponds) to capture and retain runoff	1	48	0	0	0%

4. Demonstration that the management practices implemented by members are effective in addressing water quality impairment

Justification for Removal

The Coalition's focused outreach and management practice tracking strategy has been effective at improving water quality as demonstrated by no exceedances of the WQTL for diuron in more than three years (Table 16). Based on focused outreach and follow-up results, targeted growers in the site subwatershed implemented management practices and improved water quality. Furthermore, PUR data indicate applications of diuron have not occurred in the site subwatershed since December 2014 and use prior to 2014 was minimal. Therefore, the Coalition requests that the management plan and MPM be approved for completion for diuron at Mootz Drain downstream of Langworth Pond site subwatershed.

Table 16. Mootz Drain downstream of Langworth Pond diuron monitoring history from 2008 through the 2017 WY.

Black cells indicate exceedances, grey cells indicate a sample was collected, and orange cells indicate the site was dry.

Diuron (µg/L)	Month											
Monitoring Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2008												
2009		2.1										
2010												2.7
2011												
2012												
2013												
2014												
2015												
2016												
2017										2018 WY		

Future Monitoring

During the 2018 WY, monitoring at Mootz Drain downstream of Langworth Pond is scheduled as outlined in the Coalition's MPU (approved November 10, 2017) for diuron. Monitoring will continue as scheduled until the approval of management plan completion request is received.

WESTPORT DRAIN @ VIVIAN RD

1. Demonstration through evaluation of monitoring data that water quality impairment is no longer occurring

Constituents Requested for Management Plan Completion:

- Water column toxicity to *S. capricornutum*

Site Subwatershed Overview and Monitoring History

Westport Drain @ Vivian Rd is a Represented site located in Zone 2. Monitoring at the site began during the irrigation season of 2007 and continued through October 2008. Management Plan Monitoring was initiated at the site in February 2014 and continued through the 2017 WY.

Constituent Monitoring Results and Sourcing

Monitoring results used to justify management plan completion are included in Appendix I (2007 through the 2017 WY).

Samples collected from Westport Drain @ Vivian Rd resulted in toxicity to *S. capricornutum* during four sampling events: May 2007 (73% growth compared to the control), February 2008 (12% growth), March 2008 (66% growth), and April 2008 (58% growth). A TIE was initiated on the February 2008 toxic sample; however, all toxicity in the sample was lost prior to the analysis. The toxicities did not coincide with any exceedances of the WQTLs for herbicides or metals.

Since the last toxicity in April 2008, the Coalition has monitored for *S. capricornutum* toxicity 17 times with no toxicity; the site was dry for three of the 14 monitoring events. The end of three years of monitoring with no exceedances was April 2016. Additionally, the Coalition monitored for toxicity at the site in May 2016, February, April, and May of 2017 and no toxicity occurred.

2. Documentation of education and outreach to members where water quality impairment occurred

Summary of Outreach

The Coalition conducted focused outreach from 2014 through 2016. In 2014, the Coalition contacted three targeted growers representing 451 acres in the Westport Drain @ Vivian Rd site subwatershed. Management practices were documented for 33% of the acreage identified as having direct drainage or the ability to provide drift to Westport Drain. The Coalition met individually with growers to discuss water quality concerns, document management practices, and recommend additional practices. The Coalition followed up with the growers in 2015 to determine if recommended and/or new practices were implemented.

3. Documentation of member implementation of management practices to address water quality exceedance

The complete analysis of management practices implemented in the Westport Drain @ Vivian Rd site subwatershed was reported in the ESJWQC May 1, 2016 Annual Report. Results from that analysis are summarized in the section below.

Management Practices Implemented

During focused outreach, the Coalition recommended management practices designed to address spray drift to one targeted grower in the Westport Drain @ Vivian Rd site subwatershed. In 2015, the Coalition followed up with the grower who implemented the recommended practice and now sprays areas close to waterbodies only when the wind is blowing away from them.

4. Demonstration that the management practices implemented by members are effective in addressing water quality impairment

Justification for Removal

The Coalition's focused outreach and management practice tracking strategy has been effective at improving water quality as demonstrated by no toxicity to *S. capricornutum* in more than three years (Table 17). Based on focused outreach surveys and follow-up results, the targeted grower in the Westport Drain @ Vivian Rd site subwatershed implemented management practices and water quality has improved. Therefore, the Coalition requests that the management plans and MPM for water column toxicity to *S. capricornutum* be approved for completion at Westport Drain @ Vivian Rd site subwatershed.

Table 17. Westport Drain @ Vivian Rd Pond *S. capricornutum* toxicity monitoring history from 2007 through the 2017 WY.

Black cells indicate exceedances, grey cells indicate a sample was collected, and orange cells indicate the site was dry.

S. capricornutum (% Survival)	Month											
Monitoring Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2007					73							
2008		12		58								
2009												
2010												
2011												
2012												
2013												
2014												
2015												
2016												
2017											2018 WY	

Future Monitoring

During the 2018 WY, monitoring at Westport Drain @ Vivian Rd is scheduled as outlined in the Coalition's MPU (approved November 10, 2017) for toxicity to *S. capricornutum*. Monitoring will continue as scheduled until the approval of management plan completion is received.